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ABSTRACT

The resource unit indicates how elementary school teachers can use contemporary poultry farming to teach the concepts of change and specialization in American society and to show the effects of automation of American farms. The unit lists general objectives for students: to develop an understanding of farm specialization, especially in egg production, and of egg production in general; to develop academic skills in research, written proficiency, group discussion, creative thinking, reading comprehension, and other areas; and to develop attitudes and appreciations for the contribution of poultry farmers and the use of machines for greater efficiency. The unit includes nine possible questions and problems for students. It suggests approaches for initiating the unit (field trip to poultry farm, pictures in class, discussion), learning activities for developing the unit (student research and projects; class visits by experts such as farmers, veterinarians, and county farm agents; audio visual aids), approaches for ending the unit (summaries, development of a model of a poultry farm, films, field trip to an egg grading and packing center), and techniques for evaluating the unit (test items, teacher self-evaluation questions). (SB)

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A Resource Unit

Visiting An "EGG FACTORY" On The Farm

By

Marlow Ediger

[1984]

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A Resource Unit

[1984]

VISITING AN "EGG FACTORY" ON THE FARM

Justification for Teaching the Unit

Machines, inventions, ways of living, and knowledge are continually changing. Practices on American farms are good examples of how a vocation has changed much during the past years. Farming has become highly specialized. When observing and learning about egg production on American farms, the concepts of "change" and "specialization" rather than "tradition" and "self-sufficiency" are noticed and in evidence. A farmer having "cage layers" in a laying house may have 12,000 laying hens as compared to 300 or 400 laying hens, approximately, that many farmers had nearly two decades ago and longer.

Pupils in the elementary school need to have knowledge of and accept "change" in American society. They should understand how machines have helped bring on "specialization" on American farms (as well as in factories, business, and industry). Furthermore, the use of machines has changed the role of American farmers from the heavy use of muscles to the use of machines to do work. A considerable amount of money is necessary to invest in buildings and equipment on American poultry farms involving egg production. If these farmers buy their own laying hens and poultry feed, a greater investment of money is needed (not all egg producers buy their own laying hens and

poultry feed). A considerable amount of risk by egg producers is involved when they cannot be guaranteed a stable price for their eggs (wage earners in factories, teachers, principals of schools, and others know the exact amount, generally, that will be earned in a given year through contracts). Egg prices go up or move downward depending upon the supply of eggs available, generally.

I. Suggested General Objectives for the Unit*

A. To develop within the child an understanding that

1. American farmers tend to "specialize" in farming such as egg production, or dairy farming, or the raising of beef cattle.
2. when farms specialize in egg production, four to five laying hens may be in a wire cage (approximately 12 inches by 20 inches in size); these cages are in lengthy rows, perhaps 350 feet long, so that many laying hens are in one building. One building could house 12,000 laying hens.
3. poultry farmers with cage layers may buy their own laying hens and feed, or a feed company may furnish the feed and laying hens for the farmer.
4. poultry farmers who do not buy their own laying hens and feed get a certain percent of profit from the sale of eggs (such as 16 percent). These farmers own the buildings and equipment for the production of eggs.

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*Should be stated as specific behavioral objectives when developing teaching units and lesson plans.

5. feed companies bring feed (mash) to the poultry farms on trucks equipped with a bin and an unloading auger which augers feed into the bulk bin located outside the laying house. These bins vary in size. Scooping the feed by hand would not be a modern practice.
6. from the bulk bin located outside the laying house, mash is brought in by an auger into feed hoppers located inside the building.
7. automatically at set intervals, the mash moves from the feed hoppers (one feed hopper for each row of cage layers) into troughs where chains take the feed so all laying hens get ample feed.
8. automatically, ample water flows in water troughs and is available for all cage layers.
9. lights in the laying house are set to go "on" and "off" automatically. During the winter months in most areas of the United States, the daylight hours are relatively short. Cage layers need ample light to have a seventeen hour work day.
10. laying hens are brought to the laying house by a feed company when they are approximately five months of age and are laying eggs. A farmer buying his own laying hens obtains them when they are approximately five months of age.
11. after cage layers have been in the laying house for fourteen months, they are removed and replaced by a

similar number of younger layers by the feed company.

12. laying hens and their environment need to be sprayed periodically, perhaps, six times a year for harmful insects such as lice and mites.
13. eggs from cage layers slide down gently into a trough. With the flipping of a switch, the eggs are brought on a conveyor belt to where the farmer is standing next to the egg room. He takes the eggs from the conveyor belt and puts them in egg cases.
14. eggs are refrigerated and picked up frequently, such as twice a week, by buyers.
15. eggs are graded by the company buying them. Eggs can be placed into the following grades: Grade A - large, medium, and small; Grade B; and checked or cracked eggs. One factor in determining profits of egg producers depends upon the quality of eggs produced.

B. To develop within children the following skills:

1. identifying important questions, finding data to answer the questions, and evaluating the solutions or answers obtained.
2. increasing in proficiency in written work such as developing ideas and using the mechanics of writing effectively.
3. comprehending the ideas of others in small or large group sessions and participating in the discussions effectively.
4. thinking creatively where new ideas are developed pertaining to improvement of egg production now and in the

future.

5. comprehending what has been read from materials on his appropriate reading level.
6. being able to put knowledge to use in discussions, art work, construction activities, writing, and dramatizations.
7. using a variety of sources to obtain necessary information to answer questions.
8. being able to work well with other pupils and individuals in the classroom as well as outside the classroom.

C. To develop within children the following attitudes and appreciations:

1. appreciating the contributions of poultry farmers in providing highly nourishing food for Americans.
2. wanting more knowledge and information on egg production and other aspects of farming.
3. appreciating the use of machines in egg production on farms whereby "efficiency" is important.
4. appreciating learning activities involving the identification and solving of problems.
5. appreciating improved methods of egg production on farms in obtaining higher quality products.

II. Possible Questions and Problems for Pupils to Solve

(a) Why do modern farms in the United States specialize in producing farm products?

(b) Why are laying hens kept in cages?

(c) Why have farming operations become large in the United States?

(d) What is meant by "automation"?

(e) In what ways has the use of human muscles been eliminated on modern farms engaged in egg production?

(f) Why is the initial investment of farmers high when engaging in modern approaches pertaining to egg production?

(g) How have some farmers cut down on risks involved in the production of eggs?

(h) How is the quality of eggs maintained in modern approaches involving egg production?

(i) How are losses kept at a minimum on a farm which produces eggs?

III. Suggested Approaches to Initiate the Unit

One of the major problems of teaching is to get pupils interested and actively involved in the ongoing learning activity. The teacher needs to evaluate each learning activity when beginning a unit to determine if pupils are realizing important objectives and feel a need to learn more about "Visiting an Egg Factory on the Farm." Learning activities must provide for each pupil in the classroom in order that achievement for all children is in evidence.

A. The teacher can arrange a field trip to a poultry farmer having cage layers in a large laying house. Pupils should notice that this is a specialized area of farming with emphasis placed upon the producing of eggs as compared to other types or kinds of farms. Careful observation of the number of laying hens in each cage and the cages themselves

is important. The length of the laying house should be compared with the length of a football field, or the length of the school grounds. It is important for pupils to ask questions about the laying house and the cage layers. Questions such as the following could arise:

1. How is feed brought to the farm? This could bring into the discussion the unloading of feed from a bin on the truck using an unloading auger. The feed is brought in by an auger into a bulk bin; pupils should have ample opportunity to observe and listen to a discussion of the bulk bin. Pupils must attach meaning to ideas presented.
2. How do feed and water get to the laying hens in cages? It is important here to stress that machines do the work that was formerly done manually. Automatically, according to the setting of the clock, feed for chickens leaves the feed hoppers, located inside the laying house at one end of a long row of cages for layers, and moves along a trough so all laying hens get enough feed. The clock is set once, and if the equipment works properly and ample feed is in the bulk tank, no further work is required of man in getting feed to the many layers in the laying house! Pupils should also notice that ample water moves along the water troughs for all cage layers, automatically. Laying hens in the cages must <u>not</u> be disturbed. The excursion should be of proper length to develop and maintain the interests of pupils. Excursions

which are too lengthy can cause misbehavior and boredom. Following the excursion, observations can be discussed, evaluated, and research can be conducted to answer new questions that have arisen. Proper behavior for pupils which is discussed prior to taking the excursion should help in making this learning activity successful. Identifying questions that pupils want to have answered during the excursion also should help to make for a successful learning experience!

B. Pictures of recent developments in egg production can be put on the chalkboard tray, bulletin board, and on a wall of the classroom. Many interesting pictures can be obtained from farm magazines. These pictures could pertain to the following scenes:

1. the conveyor belt bringing eggs from the long rows of cage layers to where a farmer takes the eggs from the conveyor belt and puts them in boxes or egg cases. A good discussion can follow the introduction of the picture by emphasizing the amount of work that would be involved in going along the long rows of cages to gather eggs by hand if the conveyor belt operated by an electric motor did not exist.
2. electric lights going "on" and "off" automatically, according to the setting of a clock inside the laying house. A discussion could follow relating to enough light during a 24-hour day being available to laying

hens so they can fulfill their task of being profitable layers. Generally, laying hens would need to have seventeen hours of daylight in a 24-hour day. Pupils can notice and/or find out the number of daylight hours of a 24-hour day, especially during the months of November through February, in such states as Missouri, Kansas, Nebraska, Minnesota, and others. Pupils with teacher guidance could also discuss the conveniences of lights going "on" and "off" automatically, such as light going "on" at 3:30 a.m. Some pupils may want to develop understandings which relate to the working of clocks in a laying house. This would open new doors of knowledge for many pupils.

In conducting discussions, the teacher should encourage all children to participate if possible; contributions of all pupils should be appreciated, participants should stay on the topic being discussed, pupils should identify and clarify related questions, and ideas need to be presented clearly.

IV. Suggested Learning Activities to Develop the Unit

A. Each pupil could be encouraged as well as challenged to get information pertaining to an aspect of egg production on farms from recent farm magazines and/or other reference sources. Possible topics to select could include (1) cage layers; (2) laying mash being brought to the farm; (3) modern machinery in laying houses; and (4) eggs being sold on

a graded basis.

Pupils could summarize ideas obtained in a variety of ways in order to provide for individual differences, such as (1) preparing written and oral reports; (2) presenting dramatizations; (3) developing drawings; (4) constructing dioramas; and (5) using puppets and marionettes. Pupils could also work in committees in developing a mural or frieze relating to information obtained from the research.

Information that is obtained by each child or committee should be shared and discussed in the classroom. Pupils should have numerous opportunities to discuss their contributions with others in the classroom. Developing confidence for presenting ideas, listening carefully to the thinking of others, and respecting what others have to say are important goals to realize for elementary school pupils!

B. A veterinarian or other competent person could be invited to the classroom to speak on diseases, insects, and other factors which "cut down" profits of farms producing eggs. Audiovisual materials should be used in the presentation. If the resource person is unable to come to the classroom, a suitable time, perhaps, could be arranged for an interview by a committee of pupils. The interview could be tape recorded and shared directly with other pupils in the classroom. All pupils in the classroom could be actively

involved in determining questions that could be asked. Guidelines or standards for interviewing the resource person should be developed prior to the interview.

C. A knowledgeable farmer who has raised laying hens over a period of years could talk to the class on "The History of Egg Production on American Farms." Using audiovisual aids such as slides, pictures, snapshots, filmstrips, and moving pictures makes learning meaningful and interesting to pupils. The writer remembers clearly in the early 1940's how he pumped water by hand from a water pump and carried the water in buckets to the "hen house" approximately 100 feet away for 300 laying hens. Imagine what it would be like to carry water for approximately 12,000 laying hens! At that time, the hand pump would be frozen occasionally during very cold weather and would need to be thawed. The writer carried mash as well as wheat, corn, and oats in buckets to the laying hens. Eggs were gathered by taking them from each nest, and the bucket with the eggs would get "heavy" toward the end of the egg gathering process. Some farmers, of course, had "running water" in the early 1940's. Egg production has changed tremendously from that time whereby today water and feed move down the trough automatically for all laying hens. All the eggs move on the conveyor belt to where one person puts them into boxes!

Pupil interest in a unit needs to be developed and/or maintained at a high level throughout the time this unit is

taught. Learning activities should be planned whereby pupils attach meaning to what is learned.

D. Slides, previously taken by the teacher, can be shown to pupils, relating to the grading of eggs. These slides can pertain to the use of machines in the sorting of eggs into the following grades: Grade A large, medium, and small, and Grade B. Further slides can show the process of eggs being placed into cartons ready to be placed on shelves in grocery stores.

The teacher can ask questions of pupils dealing with observations of the slides. Pupils also should ask questions or comment pertaining to what they do not understand or what interests them on a given slide.

E. The county farm agent serving as a resource person could explain to pupils how profits are divided between the feed company and the farmer when the former provides the laying hens and feed while the farmer provides the equipment, labor, and electricity in producing eggs. Advantages and disadvantages of the plan could be discussed. The county farm agent could also discuss advantages and disadvantages of a poultry farmer buying his own laying hens and feed. Charts, graphs, pictures, tables, slides, and/or filmstrips should help pupils maintain interest and comprehend ideas presented.

F. Each day, a committee of pupils can record main ideas that were developed pertaining to the unit. The committees should

thoroughly discuss and evaluate these ideas before they are recorded. To prevent boredom in recording ideas, all pupils in the classroom should have opportunities to serve on these committees. Ideas that are written down can provide pupils with opportunities to review previous learnings.

G. With appropriate readiness for reading, pupils can utilize their social studies textbooks to get needed information to answer questions pertaining to an "egg factory" on the farm. Reading materials need to be on the understanding or instructional level of pupils. Reading content that is too difficult can destroy interest in reading. Ideas that are obtained from reading social studies texts should be compared with information from other reference sources.

V. Suggested Approaches to End or Culminate a Unit

1. Pupils in committees can develop experience summaries whereby major conclusions pertaining to the unit can be written down. Appropriate "processes" followed during the discussion in committees should help each member to contribute to his optimum. Discussions of a committee can be tape recorded. With teacher assistance pupils can evaluate positive standards used in the discussion as well as ways to improve in being an effective member of a committee.

2. Cooperatively, a model poultry farm can be developed. This will involve much discussion as to what models to make and what models can be brought from home (the

latter models will have been purchased commercially). A considerable amount of time can also be spent in discussing how the models are to be made and displayed. After the display(s) has been completed, pupils can tell about the models to others in the classroom. Pupils from different classrooms can be invited to view and hear a discussion on the model poultry farm.

3. The possibilities of showing a filmstrip or film pertaining to egg production on farms should be investigated. This presentation would guide pupils to review previous learnings obtained relating to the unit "Visiting an Egg Factory on the Farm." The film or filmstrip must have content which is up-to-date. Thorough discussion of the film or filmstrip is necessary after its presentation. Incorrect concepts of pupils need to be identified and clarified through discussions and additional learning activities. The film or filmstrip could be evaluated by pupils with teacher guidance in terms of modern equipment and ideas being used in the production of eggs on the farm.

4. A visit can be made to a place where eggs are purchased, graded, and placed in cartons for delivery to grocery stores. Pupils should notice how machines have replaced the use of "human muscles" in work that is completed. Upon return from this excursion, ample time needs to be given to discuss pupil observations and questions.

Numerous skills and attitudes can be emphasized during the excursion such as being a good member of a group, wanting to gather more information, and appreciating ways of improving food products for human consumption.

VI. Suggested Evaluation Techniques

Numerous evaluation techniques can be utilized to determine if pupils have realized stated objectives.

A. Essay Test Items

1. Write two definitions of the concept "specialize" as it relates to farming practices in the United States.
2. Give two reasons why farmers are specializing in products produced on the farm.
3. Write four reasons why automation is very important on American farms.
4. Give five examples of "automation" involved in egg production on American farms.

B. True-False Items

. . 1. A modern farm engaged in the production of eggs would keep a total, perhaps, of 300 to 400 laying hens.

. . 2. Some modern farms producing eggs may not purchase their own laying hens.

. . 3. Modern machines used on farms engaged in egg production have not kept pace with modern machinery used on assembly lines in industry.

. . 4. Very little work performed with the use of human muscles is in evidence on today's modern farms engaged

in egg production.

. . 5. The owner or manager of an "egg factory" must flip a switch to turn lights "off" or "on" in a laying house.

. . 6. Human muscles are used when mash for laying hens is shoveled from a delivery truck to a bulk bin used for storage purposes.

C. Multiple-choice Items

1. Farms in the United States today can best be described by which of the following characteristics?

   (a) an increased need for more workers than previously.

   (b) a smaller investment needed in equipment and machines than previously.

   (c) less manual labor performed than previously.

   (d) all of the above.

2. Prices pertaining to produce sold on farms during a year or several years

   (a) are very stable.

   (b) are predictable.

   (c) keep increasing.

   (d) vary or fluctuate.

3. Quality in egg production is maintained through

   (a) the grading of eggs into categories, such as Grade A and Grade B.

   (b) keeping eggs refrigerated at proper temperature readings while in storage.

   (c) eggs sliding into a "trough" from cages where laying hens are kept.

(d) all of the above.

D. Completion Items

1. Modern farms in the United States tend to . . . . . in the raising of livestock or in producing eggs.
2. Laying hens are confined in . . . . . within a modern laying house.
3. Trucks bring feed (mash) to the farm which produces eggs; the feed is augered from a truck into the . . . . . where it is stored for use as needed in feeding laying hens.
4. Lights go on . . . . . in the laying house to provide adequate lighting for laying hens.
5. . . . . has to do with a machine operating another machine with no human intervention involved.

E. Self-Evaluation by the Teacher

1. Did I keep pupils interested in the ongoing learning activities?
2. Were individual differences provided for the classroom?
3. Was purpose developed within pupils for learning?
4. Did pupils attach meaning to important facts, concepts, and generalizations?
5. Did pupils realize stated objectives?